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FILE 'MEDLINE, CAPLUS, BIOSIS, SCISEARCH, LIFESCI' ENTERED AT 17:52:55 ON 14 SEP 2007

L1 2015978 S (DECREAS? OR INHIBIT? OR REDUC? OR AMELIORAT? OR ELIMINAT?)(7  
L2 80 S DELTA9(3A) FATTY(W)ACID(3A)DESATURASE  
L3 7 S L1 AND L2  
L4 5 DUP REM L3 (2 DUPLICATES REMOVED)

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L4 ANSWER 1 OF 5 MEDLINE on STN  
AU Viegas Cristina A; Cabral M Guadalupe; Teixeira Miguel C; Neumann Grit; Heipieper Hermann J; Sa-Correia Isabel  
TI Yeast adaptation to 2,4-dichlorophenoxyacetic acid involves increased membrane fatty acid saturation degree and decreased OLE1 transcription.  
SO Biochemical and biophysical research communications, (2005 Apr 29) Vol. 330, No. 1, pp. 271-8.  
Journal code: 0372516. ISSN: 0006-291X.  
AB Yeast cells adapted to the herbicide 2,4-dichlorophenoxyacetic acid (2,4-D) exhibit a plasma membrane less susceptible to 2,4-D-induced disruption and are more tolerant than unadapted cells to lethal concentrations of the herbicide. These cells, adapted to grow in the presence of increasing concentrations of 2,4-D, were found to exhibit a dose-dependent increase of the saturation degree of membrane fatty acids, associated to the higher percentage of stearic (C(18:0)) and palmitic (C(16:0)) acids, and to the decreased percentage of palmitoleic (Delta9-cisC(16:1)) and oleic (Delta9-cisC(18:1)) acids. The decreased transcription of the OLE1 gene (encoding the Delta9 fatty acid desaturase that catalyses the conversion of palmitic and stearic acids to palmitoleic and oleic acids, respectively) registered in 2,4-D adapted cells suggests that yeast adaptation to the herbicide involves the enhancement of the ratio of saturated (C(16:0) and C(18:0)) to monounsaturated (C(16:1) and C(18:1)) membrane fatty acids through a reduced OLE1 expression

L4 ANSWER 2 OF 5 MEDLINE on STN DUPLICATE 1  
AU Lock Adam L; Corl Benjamin A; Barbano David M; Bauman Dale E; Ip Clement  
TI The anticarcinogenic effect of trans-11 18:1 is dependent on its conversion to cis-9, trans-11 CLA by delta9-desaturase in rats.  
SO The Journal of nutrition, (2004 Oct) Vol. 134, No. 10, pp. 2698-704.  
Journal code: 0404243. ISSN: 0022-3166.  
AB The present study was designed to determine whether the ability of vaccenic acid (trans-11 18:1; VA) to reduce the risk of chemically induced mammary carcinogenesis in rats is direct or is mediated via conversion to cis-9, trans-11 conjugated linoleic acid (CLA). We previously reported that dietary VA caused a dose-dependent increase in the accumulation of CLA in the mammary fat pad, which was accompanied by a parallel decrease in the risk of mammary tumorigenesis. Specifically, our objective was to determine whether inhibiting Delta9-desaturase with cyclopropenoic fatty acids, supplied by sterculic oil (SO), would reverse the cancer-protective effect observed with a dietary supplement of VA-enriched butter. Female Sprague-Dawley rats were injected with a single dose of carcinogen (methylnitrosourea) and were fed 1 of 4 diets: 1) low VA (0.13% of diet), 2) low VA + SO (0.4% of diet), 3) high VA (1.60% of diet), and 4) high VA + SO. After 6 wk, the mammary glands were evaluated histologically for the appearance of premalignant lesions and were stained with bromodeoxyuridine to determine the extent of cell proliferation, and fatty acids were analyzed in plasma, liver, and mammary fat pad. The VA-enriched diet increased the tissue content of CLA, reduced the risk of developing premalignant lesions, and

decreased the proliferative activity of premalignant cells in the mammary gland. Treatment with SO reversed the effects of VA. The anticarcinogenic effect of VA is predominantly, perhaps exclusively, mediated through its conversion to cis-9, trans-11 CLA via Delta9-desaturase, and when this conversion is blocked by SO, the biological response to VA is attenuated.

- L4 ANSWER 3 OF 5 BIOSIS COPYRIGHT (c) 2007 The Thomson Corporation on STN  
AU Baumgard, L. H.; Matitashvili, E.; Corl, B. A.; Dwyer, D. A.; Bauman, D.  
E. [Reprint author]  
TI trans-10, cis-12 conjugated linoleic acid decreases lipogenic  
rates and expression of genes involved in milk lipid synthesis  
in dairy cows.  
SO Journal of Dairy Science, (September, 2002) Vol. 85, No. 9, pp. 2155-2163.  
print.  
CODEN: JDSCAE. ISSN: 0022-0302.  
AB Feeding conjugated linoleic acid (CLA) reduces milk fat synthesis in  
lactating dairy cows, and the effect has been shown to be specific for the  
trans-10, cis-12 CLA isomer. Our objectives were to examine potential  
mechanisms by which trans-10, cis-12 CLA inhibits milk fat synthesis.  
Multiparous Holstein cows (n=4) in late lactation were used in a balanced  
2X2 crossover design. Treatments consisted of a 5 d abomasal infusion of  
either skim milk (control) or purified trans-10, cis-12 CLA (13.6 g/d)  
emulsified in skim milk. On d 5 of infusion, mammary gland biopsies were  
performed and a portion of the tissue analyzed for mRNA expression of  
acetyl CoA carboxylase, fatty acid synthetase, DELTA9-  
desaturase, lipoprotein lipase, fatty acid  
binding protein, glycerol phosphate acyltransferase and acylglycerol  
phosphate acyltransferase. Lipogenic capacity was evaluated with another  
portion of the tissue. Infusion of trans-10, cis-12 CLA decreased milk  
fat content and yield 42 and 48%, respectively and increased the trans-10,  
cis-12 CLA content in milk fat from <0.1 to 4.9 mg/g. Reductions in milk  
fat content of C4 to C16 fatty acids contributed 63% to the total decrease  
in milk fat yield (molar basis). Analysis of the ratios of specific fatty  
acid pairs indicated trans-10, cis-12 CLA also shifted fatty acid  
composition in a manner consistent with a reduction in DELTA9-desaturase.  
Mammary explant incubations with radiolabeled acetate established that  
lipogenic capacity was decreased 82% and acetate oxidation to CO2 was  
reduced 61% when cows received trans-10, cis-12 CLA. Infusing trans-10,  
cis-12 CLA also decreased the mRNA expression of all  
measured enzymes by 39 to 54%. Overall, data demonstrated the mechanism  
by which trans-10, cis-12 CLA inhibits milk fat synthesis  
includes decreasing expression of genes that encode  
for enzyme involved in circulating fatty acid uptake and transport, de  
novo fatty acid synthesis, desaturation of fatty acids and triglyceride  
synthesis.
- L4 ANSWER 4 OF 5 CAPLUS COPYRIGHT 2007 ACS on STN  
AU Kumar, Vijaya B.; Vyas, Kamlesh; Buddhiraju, Manokiran; Alshaher, Motaz;  
Flood, James F.; Morley, John E.  
TI Changes in membrane fatty acids and delta-9 desaturase in senescence  
accelerated (SAMP8) mouse hippocampus with aging  
SO Life Sciences (1999), 65(16), 1657-1662  
CODEN: LIFSAK; ISSN: 0024-3205  
AB Senescence accelerated mice (SAMP8) exhibit age induced impairments such  
as loss of memory and learning disabilities by the age of 8-10 mo. Anal.  
of hippocampus of SAMP8 mice revealed that delta 9-desaturase  
(Δ9-desaturase) activity reduced up to 44-50%  
with age. Correspondingly, levels of unsatd. fatty acids are also lowered  
in the aged animals approx. to the same levels. RNase protection assay  
showed that Δ9-desaturase specific message decreased similarly with  
age. As such a decrease is known to cause alterations in membrane  
fluidity and affect cellular signaling pathways, these results suggest  
that lowering of Δ9-desaturase gene expression may be partly

involved in age induced impairments.

L4 ANSWER 5 OF 5 MEDLINE on STN  
AU Fujimori K; Anamnart S; Nakagawa Y; Sugioka S; Ohta D; Oshima Y; Yamada Y; Harashima S  
TI Isolation and characterization of mutations affecting expression of the delta9- fatty acid desaturase gene, OLE1, in *Saccharomyces cerevisiae*.  
SO FEBS letters, (1997 Aug 18) Vol. 413, No. 2, pp. 226-30.  
Journal code: 0155157. ISSN: 0014-5793.  
AB Expression of the delta9- fatty acid desaturase gene, OLE1, of *Saccharomyces cerevisiae* is negatively regulated transcriptionally and post-transcriptionally by unsaturated fatty acids. In order to isolate mutants exhibiting irregularity of OLE1 expression, we constructed an OLE1p-PHO5 fusion gene as a reporter consisting of the PHO5 gene encoding repressible acid phosphatase (rAPase) under the control of the OLE1 promoter (OLE1p). By EMS mutagenesis, we isolated three classes of mutants, pfo1, pfo2 and pfo3 (positive regulatory factor for OLE1) mutants, which show decreased rAPase activity under derepression conditions (absence of oleic acid). Analysis of the transcription of OLE1 in these pfo mutants revealed that pfo1 and pfo3 mutants have a defect in the regulation of OLE1 expression at the transcriptional level while pfo2 mutants were suggested to have a mutation affecting OLE1 expression at a post-transcriptional step. In addition, four other classes of mutants, nfo1, nfo2, nfo3 and nfo4 (negative factor for OLE1) mutants that have mutations causing strong expression of the OLE1p-PHO5 fusion gene under repression conditions (presence of oleic acid), were isolated. Results of Northern analysis of OLE1 as well as OLE1p-PHO5 transcripts in nfo mutants suggested that these mutations occurred in genes encoding global repressors. We also demonstrated that TUP1 and SSN6 gene products are required for full repression of OLE1 gene expression, by showing that either tup1 or ssn6 mutations greatly increase the level of the OLE1 transcript.

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